Mathematics

Module 5

It's About Time — and Patterns, Too

Home Instructor's Guide: Days 1–9
and
Assignment Booklet 5A
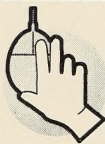
Learning
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Alberta
LEARNING

Grade Two Mathematics
Module 5: It's About Time—and Patterns, Too
Home Instructor's Guide: Days 1–9 and Assignment Booklet 5A
Learning Technologies Branch
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This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	

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- Alberta Learning, **http://www.learning.gov.ab.ca**
- Learning Technologies Branch, **http://www.learning.gov.ab.ca/ltb**
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Module 5: It's About Time—and Patterns, Too

Module 5 focuses on the measurement of time and the recognition of patterns.

Measuring Time

The student begins to develop an understanding of how long an event lasts, and to determine when an event occurred by understanding the cycles of the day, month, and year. For example, in the sentence, "On January 10, I ran three kilometres in 15 minutes," both elapsed time (15 minutes) and when the event occurred (January 10), are identified.

The student will develop the concepts of sequencing of events and determine the duration of time for an event (progressing from minutes and hours in a day, to months in a year). The student will develop an awareness of the passage of time and learn to select appropriate standard units to measure given periods of time. The experiences the student has measuring the passage of time in the lessons will help him or her develop a sense of time.

To reinforce the concept of time, discuss with the student the time it takes to do various tasks. Talk about the routine of events that occur on a daily, weekly, monthly, and yearly basis.

Patterns and Relationships

The recognition of patterns is a basic skill that enhances the development of mathematics concepts. The student will be recognizing, describing, extending, and creating patterns that are both numerical and non-numerical.

Pictures, sounds, and words help the student describe patterns and relationships. To reinforce this concept, point out patterns in everyday life: in the sounds in music, in the words in poetry and stories, in surroundings (flooring, wallpaper, buildings, grocery stores), and in nature (trees, landscaping).

Encourage the student to work on all the extension activities.

Materials You Need

- manipulatives from student's Math Box

- material in the Appendix (Remove these and have them ready to use before the lesson. Place them in the Student Folder.)

- analog and digital clocks

- calendars (You will need unused current calendars—perhaps give-aways from some businesses. For some of the activities, old calendars will do. Put them into the Student Folder.)

- dial timer, such as an egg or kitchen timer, or sand timer, or a clock with a second hand

- metronome to tick off seconds (This is not mandatory.)

- pattern blocks

- stopwatch

Daily Summary

Day 1

Today is a review of Module 3.

Day 1: Looking Back

Answers

1. a. 9   e. 8   i. 10   m. 10
   b. 6   f. 7   j. 5   n. 11
   c. 6   g. 8   k. 4   o. 10
   d. 10   h. 10   l. 10   p. 9

2. a. 5   c. 0   e. 8
   b. 1   d. 4   f. 7

3. $1 + 4 = 5, 2 + 3 = 5, 3 + 2 = 5, 4 + 1 = 5, 5 + 0 = 5$

4. a.

Rule: Add 3	
Input	Output
4	7
3	6
5	8

   b.

Rule: Add 1	
Input	Output
7	8
5	6
8	9

5. a. 7   c. 4   e. 3   g. 4   i. 8
   b. 1   d. 2   f. 0   h. 0   j. 2

6. a. 3   d. 8
   b. 3   e. 2
   c. 6   f. 1

7. a. 7   c. 2   e. 8
   b. 7   d. 2   f. 1

8. 2, 5, 1, 4, 3, 0

9. a.

Rule: Subtract 6	
Input	Output
9	3
8	2
10	4

b.

Rule: Subtract 3	
Input	Output
8	5
5	2
9	6

10. a. $20 - 18 = 2$

   b. $15 + 3 = 18$

   c. $18 - 13 = 5$

11. $4 + 6 = 10, 6 + 4 = 10, 10 - 6 = 4, 10 - 4 = 6$

12. a. $7 + 7 + 1 = 15$

   b. $6 + 6 = 12$

13. a. 14   b. 19   c. 6   d. 19

14. a. 3   b. 3   c. 2

15. a. 13   b. 14   c. 10

16. a. $10 + 2 = 12$ b. $10 + 4 = 14$ c. $10 + 5 = 15$

17. a. 97   b. 97   c. 89

18. a. 25   b. 44   c. 42

19. a. $43 + 26 = 69$
    Sammy and her sister have 69 pictures altogether.

   b. $98 - 37 = 61$
    Jasper has 61 cents in his piggy bank.

20. a. $37 + 19 = 56$
    Elena has 56 toy cars.

   b. $43 - 26 = 17$
    There were 17 more cows in the barn.

21. a. $60 + 20 = 80$ c. $40 + 10 = 50$
    b. $70 - 30 = 40$ d. $70 - 40 = 30$

22. 92 rounds to 90
    67 rounds to 70
    $90 - 70 = 20$
    Martha would have about 20¢ left.

Day 2

The student will be relating the passage of time to minutes.

Day 2: Lesson 1

If you have a metronome, set it to tick at one-second intervals. Use a one-minute timer, sand timer, or clock with a second hand.

Day 2: Lesson 2

Prepare the items the student will need (paper, pen or pencil, a book)

Day 2: Lesson 3

Ask the student for ways that one minute can be measured. These can include the time it takes the second hand to go all the way around a clock or watch, the time it takes for the last number on a digital clock to change, or the time it takes the second hand to make a complete circle on a stopwatch.

Have the Analog Clock from the Appendix ready for use. Trace or cut out the hands and use a pin to attach them to the clock. Point out the markings on the clock and tell the student that each one signifies one minute.

There are extension activities for Day 2.

Day 3

The student will be relating the passage of time to five-minute intervals.

Time today's class. Do not tell the student you are doing so. At the end of the class the student will estimate how long it was and will add or subtract the difference in minutes that it actually took.

Day 3: Lesson 1

Assist the student, if necessary, in finding activities you can do in five minutes. The comparison activity will give the student some ideas about time. Brainstorm together with the student.

Answers

1. a. saying the alphabet
   b. skipping to 100
   c. setting the table
   d. reading a book

2. a. sing a song
   b. do ten somersaults
   c. count forward to 20
   d. get dressed

Day 3: Lesson 2

Have the student count five markings from one multiple of five to the next. Tell the student that since each marking is one minute, five markings signify five minutes.

Day 3: Lesson 3

Have the student estimate the number of minutes needed for each of the activities. Then have the student do each activity while you time him or her. If some of the activities are not practical, do as many as you can or substitute other ones for them. Discuss how the student will check his or her estimate (using a clock—analog or digital—or a stopwatch). Ensure the student looks at the clock or stopwatch before and after each activity. This will link the experience to the passage of time. Then discuss the length of time each took and the student's predictions.

There are extension activities for Day 3.

Day 4

The student will be relating the passage of time to one hour.

Day 4: Lesson 1

The student is asked to set an hour timer to get an understanding of how long an hour feels. Have the student look at a clock and write down where both the hour and minute hands are. Be sure to stop whatever activity you are doing (it will probably be after math class) after exactly one hour. Discuss how the passage of one hour of time felt. Did it seem less or more than the student thought it would?

Day 4: Lesson 2

Assist the student with the time line. Tell the student that a time line is a line that lists all the hours of the day. Discuss how the student spends a typical school day. Have the student answer the questions and fill in the time line.

Ensure the student starts counting at 1 and not 12 when counting the hours on the time line. Explain that one hour has passed from 12 to 1 and that is why the count starts at one.

There are nine boxes for the student to draw in times and activities for a typical Saturday. Every box does not have to be filled in. If there are more activities than boxes, the student can draw them on a separate piece of paper.

Day 4: Lesson 3

When the student draws the clock, ensure he or she is doing so from memory.

Go over each question with the student, demonstrating the points on the clock. Ensure the student understands the concepts before proceeding.

Answers

1. a. 1 to 12
    b. right or clockwise
    c. four
    d. two
    e. They are both straight lines.
    f. One line is longer than the other.
    g. the longer one

    h. the shorter one
    i. The shorter hand has moved from one number to the next one.

2. a. circle
    b. on the top
    c. on the bottom
    d. two
    e. no
    f. They show minutes.
    g. 60
    h. There are 60 marks because there are 60 minutes in one hour.
    i. the number of minutes past or to an hour
    j. the hour
    k. the longer one
    l. The hour hand shows hours passing.
    m. 60
    n. 12

There are extension activities for Day 4.

Day 5

The student will be relating the passage of time to a day.

Day 5: Lesson 1

Review with the student that one hour is equal to 60 minutes. Discuss measuring time with minutes and hours and why time is measured that way—minutes for shorter time, hours for longer time. Tell the student that minutes measure the passage of time. Something that measures the passage of time is called a time unit. A minute is a time unit. An hour is a time unit because it measures the passage of time.

Answers

1. a. hours   d. hours
    b. minutes   e. minutes
    c. minutes   f. hours

2. a. hours   d. minutes   g. minutes
    b. hours   e. hours   h. minutes
    c. minutes   f. minutes   i. hours

Day 5: Lesson 2

The student is required to estimate and measure the passage of time in hours of a typical school day. Assist the student in filling in the estimates of number of hours spent on each activity. If you are the parent or guardian of the child, assist the student in measuring the actual number of hours of the events listed tonight and tomorrow. Please ask the parent or guardian of the student to do this if this is not you. The chart will be revisited on Day 8.

Have the student do the assignment for Day 5 after completing the day's lessons.

Day 6

The student will be relating the passage of time to hours.

Day 6: Lesson 1

Although the student has not done addition over 100 yet, show the addition equations for two and three hours. Adding $60 + 60$ will probably not be too difficult for the student to grasp, but adding $60 + 60 + 60$ may be. If so, simply explain that three hours equal 180 minutes. It is not the focus of this module to have the student understand how to add three numbers.

Answers

1. 180
2. less
3. less
4. 120
5. three

Day 6: Lesson 2

Answers

1. 24
2. less
3. 48
4. 24
5. two

There are extension activities for Day 6.

Have the student do the assignment for Day 6 after completing the day's lessons.

Day 7

The student will be relating the passage of time to months. You will need a calender for today's activities. Be sure to have one available.

Day 7: Lesson 1

Answers

January	fifth
February	third
March	twelfth
April	first
May	eighth
June	ninth
July	second
August	eleventh
September	fourth
October	tenth
November	seventh
December	sixth

Day 7: Lesson 2

Read the rhyme to the student. Then have the student read it several times. This is a useful rhyme to know for future reference.

Answers

1. 12

2.
   a. 31
   b. 28 or 29
   c. 31
   d. 30
   e. 31
   f. 30
   g. 31
   h. 31
   i. 30
   j. 31
   k. 30
   l. 31

3. 28 or 29, 30, and 31

4. They all have 30 days.

5. January, March, May, July, August, October, December

6. February

Day 7: Lesson 3

Allow the student to find the dates on his or her own. Show the student how to do this if he or she is having difficulty with it.

1. October
2. Friday
3. Thursday
4. Saturday
5. Monday

6. Wednesday
7. Sunday
8. Tuesday
9. 2, 9, 16, 23, 30
10. 6, 13, 20, 27

There are extension activities for Day 7.

Have the student do the assignment for Day 7 after completing the day's lessons.

Day 8

The student will be relating the passage of time to days, weeks, months, and years.

Day 8: Lesson 1

Revisit the chart from Day 5. Compare the estimates and the actual number of hours with the student. Talk about the checking procedure used to measure the actual number of hours. Did the student use a clock? a dial timer? Did he or she have an adult assisting with the checking? Discuss the questions with the student.

Day 8: Lesson 2

Answers

1. a. $7+7=14$
    b. 14
    c. $7+7+7=21$
    d. $7+7+7+7=28$

2. a. $7+7+7+7=28$
    b. $7+7+7+4=25$
    c. February, $7+7+7+7=28$
    d. $7+7+5=19$
    e. $7+7+7+7+7+1=36$
    f. $7+7+7+7+7+7=42$
    g. $7+6=13$ That's almost 2 weeks.
    h. $7+7+2=16$

Day 8: Lesson 3

Although the student has not studied fractions yet, show how half of twelve months is six. Count out the first six months on the calendar and write down 6; then, count out the second six months and write down 6. Add 6 + 6 to demonstrate that one half of twelve months is six months.

Answers

1. a. $12 + 12 + 12 = 36$
   b. $12 + 12 + 12 + 12 = 48$

   c. $12 + 12 + 12 + 12 + 12 = 60$
   d. $12 + 12 + 12 + 12 + 12 + 12 = 72$

2. 6 months

3. a. $12 + 12 = 24$
   b. $12 + 12 + 4 = 28$
   c. $12 + 12 + 12 + 12 + 6 = 54$
   d.

   e. $12 + 12 + 12 + 10 = 46$
   f. $12 + 12 + 6 = 30$
   g. $12 + 2 = 14$

There are extension activities for Day 8.

Have the student do the assignment for Day 8 after completing the day's lessons.

Day 9

In Days 9 through 14, the student identifies and describes patterns; in Days 15 and 16, the student creates and extends patterns; and in Day 17, the student translates patterns from one mode to another.

Day 9: Lesson 1

This lesson introduces patterns.

Day 9: Lesson 2

Check that the student understands how to create his or her own pattern. The student can make a one, two, one, two pattern (abab); one, one, two, one, one, two (aabaab) pattern; or a one, two, two, one, two, two pattern (abbabb). Ensure the patterns are true patterns and the student understands the concept.

Answers

1. a. ◼
   b. square, triangle, square, triangle, square, triangle

2. a. clap
   b. snap, clap, snap, clap, snap, clap

3. a. ◼
   b. square, star, star, square, star, star, square, star, star

4. a. jump
   b. hop jump hop jump hop jump

5. a. ☽
   b. moon, moon, circle, moon, moon, circle, moon, moon, circle

6. a. squat
   b. kick squat kick squat kick squat

Day 9: Lesson 3

After the student has created two different patterns, demonstrate how to represent them using sound. For example, for a circle square pattern, the student can clap hands for the circle and clap hands to knees for the square, or snap fingers for one and clap for the other. For a one two pattern, the student can snap fingers once, then twice, then once, then twice again.

Brainstorm with the student the sounds and body actions to represent the patterns. The student can squat, hop, wave arms, turn around, and so on to show the pattern with actions. If necessary, adapt the actions the student is able to do. Have the student make the sounds and body actions for each pattern several times.

Afterwards, have the student show what sounds and body actions were chosen and how they were used to represent each patterns.

For example, for this pattern ● ■ ■ ● ■ ■, the sounds can be shown like this:

snap, clap clap, snap, clap clap

For actions, the pattern can be shown like this:

hop, turn around turn around, hop, turn around turn around

Day 9: Lesson 4

The student will draw pictures of the patterns he or she made. For example, if one pattern was aabaab, the student can draw two apples, one orange, two apples, one orange, and so on.

Next, the student will use interlocking cubes to represent the patterns made in Lesson 2. For example, if one of the patterns was an abab pattern, link blue, yellow, blue, yellow cubes together. If the pattern was an aabaab pattern, link red, red, blue, red, red, blue, cubes together.

As the last activity of the class, have the student create new patterns of his or her own.

There are extension activities for Days 9–16.

Have the student work on the assignment for Day 9 after completing the day's lessons.

When the student finishes the assignment, direct him or her to the Student Survey and Student Checklist in the Assignment Booklet 5A. The student may work on these alone or with your help. Go over the responses and discuss them with the student. Give additional instruction as needed for any of the concepts the student has indicated he or she needs help with.

Ensure that you complete the Home Instructor's Evaluation Checklist and Feedback forms for Days 1 to 9. In the Home Instructor's Feedback, give any information you think may be helpful for the teacher to know.

Submit Assignment Booklet 5A for marking.

ASSIGNMENT BOOKLET 5A

Grade Two Mathematics
Module 5: Days 1–9

Home Instructor's Comments and Questions

_____
Home Instructor's Signature

FOR SCHOOL USE ONLY

Assigned Teacher:

_____

Grading

Mathematics:

_____

Neatness:

_____

Date Assignment Booklet
Received:

_____

FOR HOME INSTRUCTOR USE
(if label is missing or incorrect)

Student File Number:

_____

Grading Scale

A – Very Satisfactory
B – Satisfactory
C – Needs Attention
D – Unsatisfactory

Apply Module Label Here

Name

Address

Postal Code

Please verify that preprinted label is for correct course and module.

Teacher's Comments

_____
Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

INSTRUCTIONS FOR SENDING IN THIS
DISTANCE LEARNING ASSIGNMENT BOOKLET

When you register for distance learning courses, you are expected to send in Assignment Booklets for corrections regularly. Try to send each Assignment Booklet as soon as you have completed it. Before sending your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

MAILING

1. Postage Regulations

Do **not** enclose letters with Assignment Booklets.

Send all letters in a separate envelope.

2. Postage Rates

Take your Assignment Booklet to the post office and have it weighed. Attach enough postage and seal the envelope. Assignment Booklets will travel faster if correct postage is used and if they are in large envelopes that are no more than two centimetres thick.

FAXING

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2. All faxing costs are the responsibility of the sender.

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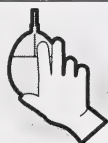
Module 5

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and Patterns, Too

Assignment Booklet 5A

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1. Circle the unit of time you would use to measure the following.

    a. how long it takes to sing "Oh Canada"   minutes   hours

    b. how long a camping trip is   minutes   hours

    c. how long it takes to play a game of hockey   minutes   hours

    d. how long a day is   minutes   hours

    e. how long it takes to make your bed   minutes   hours

2. a. Circle the time unit you would use to measure how long it takes you to wash your hair.

    minutes   hours

    Explain your answer.

    _____

    _____

3. How many minutes are in one hour? ☐

4. Circle the correct answer.

   a. Don watched a cartoon for 38 minutes.
      Is that more or less than one hour?   more   less

   b. Farah spent 25 minutes writing a letter.
      Is that more or less than one hour?   more   less

   c. Shaun spent 75 minutes practising his violin.
      Is that more or less than one hour?   more   less

   d. Trish played with her baby sister for 105 minutes.
      Is that more or less than one hour?   more   less

1. How many minutes are in an hour? ☐

2. How many hours are in a day? ☐

3. Talia's kittens were born 50 minutes ago. Is that more or less than one hour?

   _____

4. Jaffar slept for 20 hours on the weekend. Is that more or less than one day?

   _____

5. a. Stefan worked on his model airplane for three hours. How many minutes did

   he spend on it? ☐

   b. Explain your answer.

   _____

   _____

6. a. Jamie's mother was away on a business trip for two days. How many hours

   was she away? ☐

   b. Explain your answer.

   _____

   _____

7. Joan spent 32 hours at her cousin's house one weekend. Is that more or less

   than one full day? _____

8. Rob went on a hike for 145 minutes. Is that more or less than two hours?

   _____

9. Jasper and Elena watched a movie that was 95 minutes long. Is that more or

   less than two hours? _____

10. Helene spends one hour every night playing the piano. How many nights will
    she have to spend playing the piano to make one full day of playing?

    ☐

1. Number the months in the correct order from 1 to 12.

   a. May _____   g. December _____

   b. October _____   h. August _____

   c. September _____   i. February _____

   d. June _____   j. July _____

   e. March _____   k. November _____

   f. January _____   l. April _____

2. Fill in the dates on the calendar.

APRIL

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2				

3. Using this calendar, print the days of the week for these dates.

   a. April 25 _____

   b. April 9 _____

c. April 30 _____

d. April 7 _____

e. April 17 _____

f. April 1 _____

4. Using the calendar, print the date for each of these.

a. 2nd Friday _____

b. 1st Thursday _____

c. 5th Tuesday _____

d. 4th Monday _____

e. 3rd Sunday _____

Answer the questions. Show the equations you used, and explain how you got your answers.

1. How many days are there in one week and six days?

_____

_____

_____

2. How many months are there in four years?

_____

_____

_____

3. How many months are there in two years and nine months?

_____

_____

_____

4. How many days are there in three weeks and five days?

_____

_____

_____

5. How many months are there in three-and-a-half years?

_____

_____

_____

Look carefully at the pattern.

○ ○ ☐ ○ ○ ☐ ○ ○ ☐ ○ ○ ☐

1. Describe the pattern.

_____

_____

_____

2. Draw pictures to show the pattern.

3. Copy the pattern using sounds. Show what sounds you can use.

4. Copy the pattern using actions. Show what actions you can use.

Student Survey

Days 1 to 9

Think about what you learned in Days 1 to 9. Then answer these questions.

What did you like best about Days 1 to 9?

_____

_____

_____

_____

List **three** things you learned in Days 1 to 9.

_____

_____

_____

_____

Is there something you would like to know more about?

_____

_____

_____

_____

_____

Is there something you still need help with?

_____

_____

_____

_____

_____

Student Checklist

Days 1 to 9

I know . . .	Put a check mark beside the things you can do.
1. how to measure time in minutes and hours	
2. when to use minutes and when to use hours when measuring time	
3. the names of the months of the year in order	
4. how to read the date on a calendar	
5. what a pattern is	
6. how to describe a pattern	

Home Instructor's Evaluation Checklist

Days 1 to 9

Specific Outcomes/ Concepts Learned The student . . .	Has the student mastered the concept (yes or no)?
1. estimates and measures the passage of time related to mintues and hours	
2. selects the most appropriate standard unit to measure a given period of time	
3. names, in order, the months of the year	
4. relates the number of days to a week, months to a year, minutes to an hour, hours to a day	
5. reads the date on a calendar	
6. identifies and describes patterns, including numerical and non-numerical patterns	

Home Instructor's Feedback

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